From:	Amy Seeraty
Sent time:	10/28/2019 08:36:58 AM
To:	Ron Dragoo
Cc:	Ara Mihranian
Subject:	FW: Trump National Golf Course: SUSMP Review #3
Attachments:	BIO-1 Biofiltration.pdf Owner's Certification.pdf Engineer Certification _SUSMP.pdf Form OC1 - RPV.pdf Form P2 - RPV.pdf LID Plan Check Correction Sheet_Trump National_2019.09.23.pdf O&M Plan Template (LID).doc

Was this supposed to be sent to you also? If so, please see the attached, thanks.

Amy Seeraty

Senior Planner

City of Rancho Palos Verdes

Community Development Department

30940 Hawthorne Blvd.

Rancho Palos Verdes, CA 90275

www.rpvca.gov

amys@rpvca.gov - (310) 544-5231

From: Michelle Staffield [mailto:mstaffield@jlha.net]
Sent: Wednesday, October 02, 2019 10:03 AM
To: Amy Seeraty <AmyS@rpvca.gov>
Cc: Ara Mihranian <AraM@rpvca.gov>
Subject: FW: Trump National Golf Course: SUSMP Review #3

Hi Amy,

It was great talking to you this morning. Please see the email below for the latest Plan Check Corrections for the subject project (no action items for the City at this point).

Regards,

Michelle Staffield, P.E. | CPSWQ | QSD

Water Resources Engineer

JLHA

6131 Orangethorpe Ave. **Suite 300**

Buena Park, Ca 90620

Office: (562) 802-7880 x **234**

Fax: (562) 802-2297

From: Michelle Staffield
Sent: Monday, September 23, 2019 10:27 AM
To: 'AraM@rpvca.gov' <AraM@rpvca.gov>
Subject: FW: Trump National Golf Course: SUSMP Review #3

Hi Ara,

Please see email below (I sent to So Kim but received her bounce back email that she is no longer with the City). Will you be a good point of contact for this project?

Regards,

Michelle Staffield, P.E. | CPSWQ | QSD

Water Resources Engineer

JLHA

6131 Orangethorpe Ave. **Suite 300**

Buena Park, Ca 90620

Office: (562) 802-7880 x **234**

Fax: (562) 802-2297

From: Michelle Staffield
Sent: Monday, September 23, 2019 10:20 AM
To: 'Ron Dragoo' <RonD@rpvca.gov>
Cc: 'esassoon@rpvca.gov' <esassoon@rpvca.gov>; 'So Kim' <SoK@rpvca.gov>; desiream@rpvca.gov; 'Selim' <Selim@sawayaeng.com>; Jill Martin <jmartin@trumpnational.com>
Subject: Trump National Golf Course: SUSMP Review #3

Hi Ron,

Please find (see attached) the Plan Check Correction Sheet for Trump National Golf Course (Tract 50666), SUSMP Review #3. Note, the Project Engineer is cc'd herein. Since the submittal only contained an electronic copy, hard copies will not be returned to the City.

As previously discussed, various relevant Plans (i.e. precise grading, architectural, landscape, etc.) are not available at this time; however, the project shall conservatively estimate the maximum allowed impervious coverage from these areas (as conditioned by the City) for the LID BMP sizing calculations. This is acceptable so long as prior to issuance of building permits for individual residential lots, the applicant shall prepare and submit all relevant construction Plans conforming to the approved SUSMP.

Note, the SUSMP design was significantly changed from the previous review, resulting in several critical corrections:

1) A 'Sand Filter Basin' is proposed to mitigate subareas 6 – 12; however, this device does not meet the design specifications of an approved design standard for a biofiltration BMP (i.e. vegetation and soil media must be incorporated). Revise the SUSMP report to specify the design standard utilized [i.e. LA County's BIO-1 (see attached), etc.] and ensure all design specifications are being followed (i.e. geometry, sizing, drainage, Planting/Storage Media, etc.).

2) BMP sizing calculations indicate "percent impervious of 30% for residential land use was condition by the City;" however, the City indicated in their email on May 1, 2019 that the maximum allowed lot coverage (i.e. impervious) is 40% (not 30%). See Resolution No. 2008-85, Condition Q1 below.

Q. MINIMUM OPEN SPACE REQUIREMENTS OF INDIVIDUAL RESIDENCES

1. The minimum open space requirement for all lots shall not be less than 60 percent of the lot. Lot coverage shall include the building footprint, driveway and parking area, covered patios, covered walkways, and other accessory structures.

3) Provide sizing calculations to demonstrate the diversion structure within Line P is sized to convey the $SWQD_V$ from subareas 6-12 to the proposed BMP and only flow beyond the $SWQD_V$ can bypass the BMP.

4) Subarea 4 directs $SWQD_V$ offsite without treatment and must be mitigated by a LID BMP.

Selim, I've also provided several attachments (i.e. Owner's Certification Page, Engineer's Certification Page, City Forms, MCA, etc.) to be utilized in the next submittal. I've also included an O&M Plan template for your use/reference.

Please do not hesitate to contact me should you have any questions regarding the Plan Check Correction Sheet.

Lastly, the Project is over 1 acre and requires a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must be submitted for review and deemed compliant with the CGP. Once authorized, the SWPPP must be uploaded to SMARTS and issued a WDID # prior to approval of the SUSMP.

Regards,

Michelle Staffield, P.E. | CPSWQ | QSD

Water Resources Engineer

6131 Orangethorpe Ave. **Suite 300**

Buena Park, Ca 90620

Office: (562) 802-7880 x **234**

Fax: (562) 802-2297

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BIO-1: Biofiltration

Definition

A biofiltration area is a vegetated shallow depression that is designed to receive and treat stormwater runoff from downspouts, piped inlets, or sheet flow from adjoining paved areas. A shallow ponding zone is provided above the vegetated surface for temporary storage of stormwater runoff. During storm events, stormwater runoff accumulates in the ponding zone and gradually infiltrates the surface and filters through the biofiltration soil media before being collected by an underdrain system.

Stormwater runoff treatment occurs through a variety of natural mechanisms as stormwater runoff filters through the vegetation root zone. In biofiltration areas, microbes and organic material in the biofiltration soil media help promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the soil matrix. Plants utilize soil moisture and promote the drying of the soil through transpiration. Biofiltration areas are typically planted with native, drought-tolerant plant species that do not require fertilization and can withstand wet soils for at least 96 hours.

A schematic of a typical biofiltration area is presented in Figure E-7.

LID Ordinance Requirements

Biofiltration can be used as an alternative compliance measure.

Pollutant of Concern	Treated by Biofiltration?
Suspended solids	No
Total phosphorus	No
Total nitrogen	Yes
Total Kjeldahl nitrogen	Yes
Cadmium, total	No
Chromium, total	Yes
Copper, total	No
Lead, total	Yes
Zinc, total	No

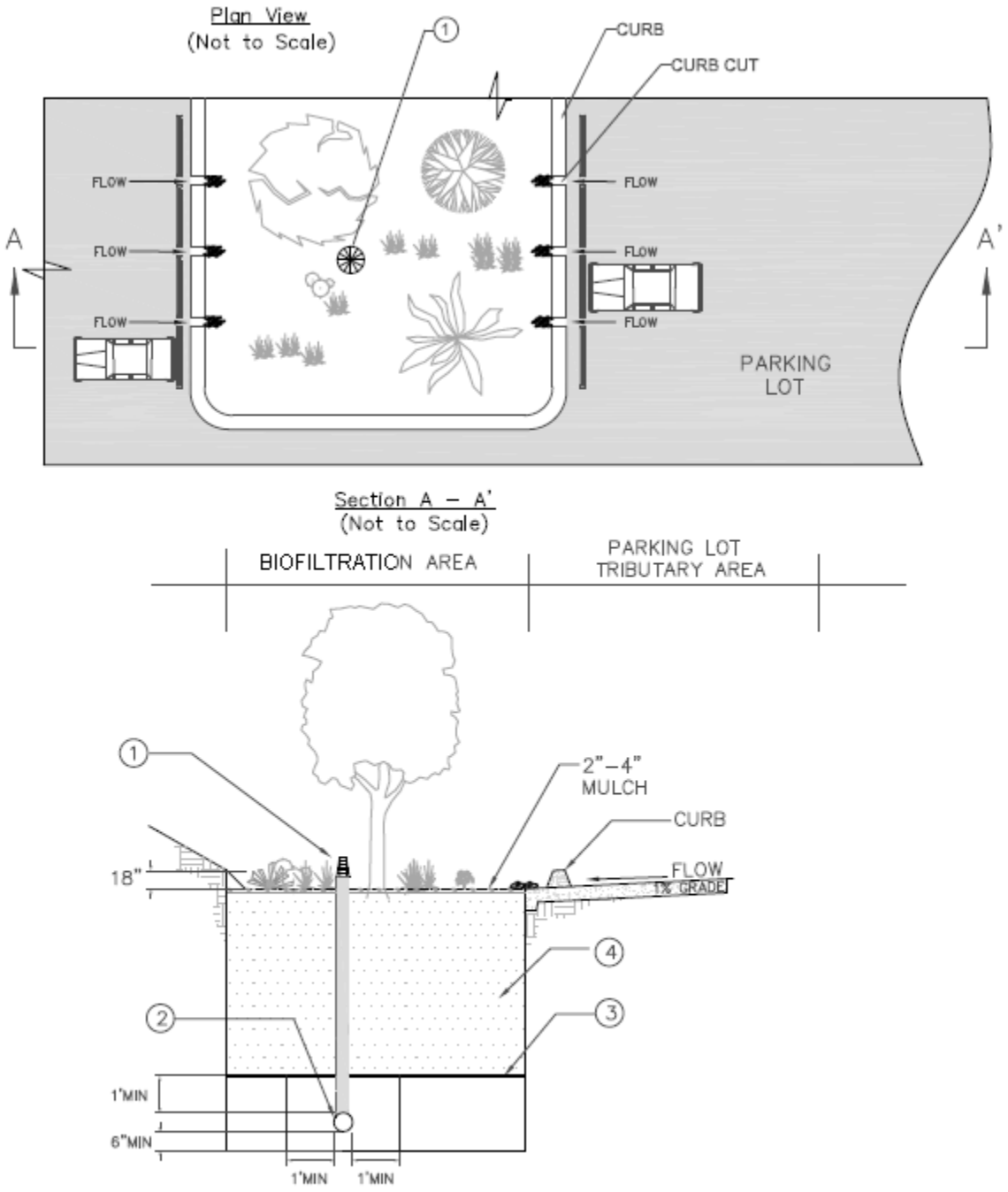
Source: Treatment Best Management Practices Performance, Los Angeles Regional Water Quality Control Board, December 9, 2013.

Advantages

- Has a low cost for installation
- Enhances site aesthetics
- Requires little maintenance

Disadvantages

- May require individual owner/tenants to perform maintenance



NOTES

① OVERFLOW DEVICE: VERTICAL RISER OR EQUIVALENT.

② PERFORATED 6" MIN PVC PIPE UNDERDRAIN SYSTEM. WHERE SOIL CONDITIONS ALLOW, OMIT THE UNDERDRAIN AND INSTALL AN APPROPRIATELY SIZED GRAVEL DRAINAGE LAYER (TYPICALLY A WASHED 57 STONE) BENEATH THE PLANTING MEDIA FOR ENHANCED INFILTRATION.

③ OPTIONAL CHOKING GRAVEL LAYER.

④ 2' MIN PLANTING MIX; 3' PREFERRED.

Figure E-7. Biofiltration Area Schematic

General Constraints and Implementation Considerations

- Biofiltration areas can be applied in various settings including, but not limited to:
  - Individual lots for rooftop, driveway, and other on-site impervious surface
  - Shared facilities located in common areas for individual lots
  - Areas within loop roads or cul-de-sacs
  - Landscaped parking lot islands
  - Within right-of-ways along roads
  - Common landscaped areas in apartment complexes or other multi-family housing designs
  - Parks and along open space perimeter
- If tire curbs are provided and parking stalls are shortened, cars are allowed to overhang the biofiltration area.
- Biofiltration areas must be located sufficiently far from structure foundations to avoid damage to structures (as determined by a certified structural or geotechnical engineer).
- Any parking areas bordering the biofiltration area must be monolithically poured concrete or deepended curb concrete to provide structural stability to the adjacent parking section.
- Geomembrane liners must be used in areas subject to spills or pollutant hot spots.
- During construction activities should avoid compaction of native soils below planting media layer or gravel zone.
- Stormwater runoff must be diverted around the biofiltration area during the period of vegetation establishment. If diversion is not feasible, the graded and seeded areas must be protected with suitable sediment controls (i.e., silt fences).All damaged areas should be repaired, seeded, or re-planted immediately.
- The general landscape irrigation system should incorporate the biofiltration area, as applicable.

Design Specifications

The following sections describe the design specifications for biofiltration areas.

Geotechnical

Due to the potential to contaminate groundwater, cause slope instability, impact surrounding structures, and potential for insufficient infiltration capacity, an extensive geotechnical site investigation must be conducted during the site planning process to verify site suitability for biofiltration. All geotechnical investigations must be performed according to the most recent GMED Policy GS 200.1. Soil infiltration rates and the

groundwater table depth must be evaluated to ensure that conditions are satisfactory for proper operation of a biofiltration area. The project applicant must demonstrate through infiltration testing, soil logs, and the written opinion of a licensed civil engineer that sufficiently permeable soils exist on-site to allow the construction of a properly functioning biofiltration system.

Biofiltration areas are appropriate for soils with a minimum corrected in-situ infiltration rate of 0.3 in/hr. The geotechnical report must determine if the proposed project site is suitable for a biofiltration area and must recommend a design infiltration rate (see "Design Infiltration Rate" under the "Sizing" section). The geotechnical investigation should be such that a good understanding is gained as to how the stormwater runoff will move through the soil (horizontally or vertically) and if there are any geological conditions that could inhibit the movement of water.

Pretreatment

Pretreatment refers to design features that provide settling of large particles before stormwater runoff enters a stormwater quality control measure in order to reduce the long-term maintenance burden. Pretreatment should be provided to reduce the sediment load entering a biofiltration area in order to maintain the infiltration rate of the biofiltration area. To ensure that biofiltration areas are effective, the project applicant must incorporate pretreatment devices that provide sediment removal (e.g., vegetated swales, vegetated filter strips, sedimentation manholes, and proprietary devices). The use of at least two pretreatment devices is highly recommended for biofiltration areas.

Geometry

- Biofiltration areas must be sized to capture and treat 1.5 times the SWQDv that is not reliably retained on the project site with an 18-inch maximum ponding depth.
- The planting soil depth must be a minimum of two feet, although three feet is preferred. The planting soil depth should provide a beneficial root zone for the chosen vegetation and adequate water storage for the stormwater runoff. A deeper planting soil depth will also provide a smaller surface area footprint.
- A gravel storage layer below the biofiltration area soil media is required to provide adequate temporary storage to retain 1.5 times the SWQDv that is not reliably retained on the project site and to promote infiltration.

Sizing

Biofiltration areas are sized using a simple sizing method where 1.5 times the SWQDv that is not reliably retained on the project site must be completely filtered within 96 hours. If the incoming stormwater runoff flow rate is lower than the long term filtration rate, above ground storage does not need to be provided. If the incoming stormwater runoff flow rate is higher than the long term filtration rate, above ground storage shall be provided (see steps below).

BIO-1 Biofiltration.pdf

Step 1: Calculate the design volume

Biofiltration areas should be sized to capture and treat 1.5 times the portion of the SWQDv (see Section 6 for SWQDv calculation procedures) that is not reliability retained on the project site, as calculated by the equation below:

$$V_B = 1.5 \times (SWQDv - V_R)$$

Where:

V_B = Biofiltration volume [ft^3];
SWQDv = Stormwater quality design volume [ft^3]; and
V_R = Volume of stormwater runoff reliably retained on-site [ft^3].

Step 2: Calculate the design infiltration rate

Determine the corrected in-situ infiltration rate (f_{design}) of the native soil using the procedures described in the most recent GMED Policy GS 200.1.

Step 3: Calculate the surface area

Select a surface ponding depth (d) that satisfies the geometric criteria and meets the site constraints. Selecting a deeper ponding depth (up to 1.5 ft) generally yields a smaller footprint, however, it will require greater consideration for public safety, energy dissipation, and plant selection.

Calculate the time for the selected ponding depth to filter through the planting media using the following equation:

$$\mathrm{d} = t_p \times \frac{\mathrm{f_{design}}}{12}$$

Where:

d = Ponding depth (max 1.5 ft) [ft];
t_p = Required detention time for surface ponding (max 96 hr) [hr]; and
f_{design} = Design infiltration rate [in/hr].

If t_p exceeds 96 hours, reduce surface ponding depth (d). In nearly all cases, t_p should not approach 96 hours unless f_{design} is low.

Calculate the required infiltrating surface (filter bottom area) using the following equation:

$$A = \frac{V_B}{d}$$

Where:

A = Bottom surface area of biofiltration area [ft^2];
V_B = Biofiltration design volume [ft^3]; and
d = Ponding depth (max 1.5 ft) [ft].

Flow Entrance and Energy Dissipation

Maintain a minimum slope of 1 percent for pervious surfaces and 0.5 percent for impervious surfaces to the biofiltration area inlet. The following types of flow entrance can be used for biofiltration cells:

- Level spreaders (i.e., slotted curbs) can be used to facilitate sheet flow.
- Dispersed, low velocity flow across a landscape area. Dispersed flow may not be possible given space limitations or if the biofiltration area is controlling roadway or parking lot flows where curbs are mandatory.
- Dispersed flow across pavement or gravel and past wheel stops for parking areas.
- Flow spreading trench around perimeter of biofiltration area. May be filled with pea gravel or vegetated with 3:1 side slopes similar to a swale. A vertical-walled open trench may also be used at the discretion of LACDPW.
- Curb cuts for roadside or parking lot areas, if approved by LACDPW: curb cuts should include rock or other erosion controls in the channel entrance to dissipate energy. Flow entrance should drop two to three inches from curb line and provide an area for settling and periodic removal of sediment and coarse material before flow dissipates to the remainder of the biofiltration area.
- Piped entrances, such as roof downspouts, should include rock, splash blocks, or other erosion controls at the entrance to dissipate energy and disperse flows.
- Woody plants (trees, shrubs, etc.) can restrict or concentrate flows and can be damaged by erosion around the root ball and must not be placed directly in the entrance flow path.

Drainage

Biofiltration areas must be designed to drain below the planting soil in less than 96 hours. Soils must be allowed to dry out periodically in order to restore hydraulic capacity to receive stormwater runoff from subsequent storm events, maintain infiltration rates, maintain adequate soil oxygen levels for healthy soil biota and vegetation, and provide proper soil conditions for biodegradation and retention of pollutants.

Underdrain

Biofiltration areas require an underdrain to collect and discharge stormwater runoff that has been filtered through the soil media, but not infiltrated, to another stormwater quality control measure, storm drain system, or receiving water. The underdrain must have a mainline diameter of eight inches using slotted PVC SDR 26 or PVC C9000. Slotted PVC allows for pressure water cleaning and root cutting, if necessary. The slotted pipe

should have two to four rows of slots cut perpendicular to the axis of the pipe or at right angles to the pitch of corrugations. Slots should be 0.04 to 0.1 inches wide with a length of 1 to 1.25 inches. Slots should be longitudinally-spaced such that the pipe has a minimum of one square inch opening per lineal foot and should face down.

The underdrain should be placed in a gravel envelope (Class 2 Permeable Material per Caltrans Spec. 68-1.025) that measures three feet wide and six inches deep. The underdrain is elevated from the bottom of the biofiltration area by six inches within the gravel envelope to create a fluctuating anaerobic/aerobic zone below the underdrain to facilitate denitrification within the anaerobic/anoxic zone and reduce nutrient concentrations. The top and sides of the underdrain pipe should be covered with gravel to a minimum depth of 12 inches. The underdrain and gravel envelope should be covered with a geomembrane liner to prevent clogging. The following aggregate should be used for the gravel envelope:

Particle Size (ASTM D422)	% Passing by Weight
¾ inch	100%
¼ inch	30-60%
#8	20-50%
#50	3-12%
#200	0-1%

Underdrains should be sloped at a minimum of 0.5 percent and must drain freely to an approved discharge point.

Rigid non-perforated observation pipes with a diameter equal to the underdrain diameter should be connected to the underdrain to provide a clean-out port as well as an observation well to monitor drainage rates. The wells/clean-outs should be connected to the perforated underdrain with the appropriate manufactured connections. The wells/clean-outs should extend six inches above the top elevation of the biofiltration area mulch, and should be capped with a lockable screw cap. The ends of underdrain pipes not terminating in an observation well/clean-out should also be capped.

Hydraulic Restriction Layer

Lateral infiltration pathways may need to be restricted due to the close proximity of roads, foundations, or other infrastructure. A geomembrane liner, or other equivalent waterproofing, may be placed along the vertical walls to reduce lateral flows. This geomembrane liner must have a minimum thickness of 30 mils and meet the requirements of Table E-12. Generally, waterproof barriers should not be placed on the bottom of the biofiltration unit, as this would prevent incidental infiltration which is important to meeting the required pollutant load reduction.

Table E-12. Geomembrane Liner Specifications for Biofiltration Areas

Parameter	Test Method	Specifications
Material		Nonwoven geomembrane liner
Unit weight		8 oz/yd^3 (minimum)
Filtration rate		0.08 in/sec (minimum)
Puncture strength	ASTM D-751 (Modified)	125 lbs (minimum)
Mullen burst strength	ASTM D-751	400 lb/in^2 (minimum)
Tensile strength	AST D-1682	300 lbs (minimum)
Equiv. opening size	US Standard Sieve	No. 80 (minimum)

Planting/Storage Media

- The planting media placed in the biofiltration area should achieve a long-term, in-place infiltration rate of at least 5 in/hr. Higher infiltration rates of up to 12 in/hr are permissible. The biofiltration soil media must retain sufficient moisture to support vigorous plant growth.
- The planting media mix must consist of 60 to 80 percent sand and 20 to 40 percent compost.
- Sand should be free of wood, waste, coatings such as clay, stone dust, carbonate, or any other deleterious material. All aggregate passing the No. 200 sieve size should be non-plastic. Sand for biofiltration should be analyzed by an accredited laboratory using #200, #100, #40, #30, #16, #8, #4, and 3/8 sieves (ASTM D422 or as approved by the local permitting authority) and meet the following gradations (Note: all sand complying with ASTM C33 for fine aggregate comply with the gradation requirements listed below):

Particle Size (ASTM D422)	% Passing by Weight
3/8 inch	100%
#4	90-100%
#8	70-100%
#16	40-95%
#30	15-70%
#40	5-55%
#110	0-15%
#200	0-5%

Note: The gradation of the sand component of the biofiltration soil media is believed to be a major factor in the infiltration rate of the media mix. If the desired hydraulic conductivity of the biofiltration soil media cannot be achieved within the specified proportions of sand and compost (#2), then it may be necessary to utilize sand at the coarser end of the range specified minimum percent passing.

- Compost should be a well-decomposed, stable, weed-free organic matter source derived from waste materials including yard debris, wood wastes, or other organic material not including manure or biosolids meeting standards developed by the USCC. The product shall be certified through the USCC STA Program (a compost testing and information disclosure program). Compost quality shall be verified via a laboratory analysis to be:
    - Feedstock materials must be specified and include one or more of the following: landscape/yard trimmings, grass clippings, food scraps, and agricultural crop residues.
    - pH between 6.5 and 8.0 (may vary with plant palette)
    - Organic Matter: 35 to 75 percent dry weight basis
    - Carbon and Nitrogen Ratio: 15:1 < C:N < 25:1
    - Maturity/Stability: Compost must have a dark brown color and a soil-like odor. Compost exhibiting a sour or putrid smell, containing recognizable grass or leaves, or is hot (120°F) upon delivery or rewetting is not acceptable.
    - Toxicity: any one of the following measures is sufficient to indicate non-toxicity:
        - NH_4:NH_3 < 3
        - Ammonium < 500 ppm, dry weight basis
        - Seed germination > 80 percent of control
        - Plant trials > 80 percent of control
        - Solvita® > 5 index value
    - Nutrient content:
        - Total Nitrogen content ≥ 0.9 percent preferred
        - Total Boron should be < 80 ppm; soluble boron < 2.5 ppm
    - Salinity: < 6.0 mmhos/cm
    - Compost for biofiltration area should be analyzed by an accredited laboratory using #200, ¼-inch, ½-inch, and 1-inch sieves (ASTM D422) and meet the gradation requirements in the table below:

Particle Size (ASTM D422)	% Passing by Weight
1 inch	99-100
½ inch	90-100
¼ inch	40-90
#200	2-10

Tests should be sufficiently recent to represent the actual material that is anticipated to be delivered to the site. If processes or sources used by the supplier have changed significantly since the most recent testing, new tests should be requested.

The gradation of compost used in biofiltration soil media is believed to play an important role in the saturated infiltration rate of the media. To achieve a higher saturated infiltration rate, it may be necessary to utilize compost at the coarser end of the range (minimum percent passing). The percent passing the #200 sieve (fines) is believed to be the most important factor in hydraulic conductivity.

In addition, coarser compost mix provides more heterogeneity of the biofiltration soil media, which is believed to be advantageous for more rapid development of soil structure needed to support healthy biological processes. This may be an advantage for plant establishment with lower nutrient and water input.

- Biofiltration soil media not meeting the above criteria should be evaluated on a case-by-case basis. Alternative biofiltration soil media must meet the following specifications:

  "Soils for biofiltration facilities must be sufficiently permeable to infiltrate stormwater runoff at a minimum of rate of 5 in/hr during the life of the facility, and provide sufficient retention of moisture and nutrients to support healthy vegetation." The following steps shall be followed by LACDPW to verify that alternative biofiltration soil media mixes meet the specification:

  - Submittals – The applicant must submit to LACDPW for approval:
    - A sample of mixed biofiltration soil media.
    - Certification from the soil supplier or an accredited laboratory that the biofiltration soil media meets the requirements of this specification.
    - Certification from an accredited geotechnical testing laboratory that the biofiltration soil media has an infiltration rate between 5 and 12 in/hr.
    - Organic content test results of the biofiltration soil media. Organic content test shall be performed in accordance with the Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, "Loss-On-Ignition Organic Matter Method".
    - Organic grain size analysis results of mixed biofiltration soil media performed in accordance with ASTM D422, Standard Test Method for Particle Size Analysis of Soils.
    - A description of the equipment and methods used to mix the sand and compost to produce the biofiltration soil media.
  - The name of the testing laboratory(ies) and the following information:

- Contact person(s)
- Address(es)
- Phone contact(s)
- E-mail address(es)
- Qualifications of laboratory(ies) and personnel including date of current certification by STA, ASTM, or approved equal.

o Biofiltration soils shall be analyzed by an accredited laboratory using #200 and ½-inch sieves (ASTM D422 or as approved by LACDPW), and meet the gradation described in the table below:

Particle Size (ASTM D422)	% Passing by Weight
½ inch	97-100
#200	2-5

- Biofiltration soil media shall be analyzed by an accredited geotechnical laboratory for the following tests:
  - Moisture – density relationships (compaction tests) must be conducted on biofiltration soil media. Biofiltration soil media for the permeability test shall be compacted to 85 to 90 percent of the maximum dry density (ASTM D1557).
  - Constant head permeability testing in accordance with ASTM D2434 shall be conducted on a minimum of two samples with a 6-inch mold and vacuum saturation.
- Mulch is recommended for the purpose of retaining moisture, preventing erosion, and minimizing weed growth. Projects subject to the California Model Water Efficiency Landscaping Ordinance (or comparable local ordinance) will be required to provide at least 2 inches of mulch. Aged mulch, also called compost mulch, reduces the ability of weeds to establish, keeps soil moist, and replenishes soil nutrients. Biofiltration areas must be covered with two to four inches (average three inches) of mulch at the start and an annual placement (preferably in June after weeding) of one to two inches of mulch beneath plants.
- The planting media design height must be marked appropriately, such as a collar on the overflow device or with a stake inserted two feet into the planting media and notched, to show biofiltration surface level and ponding level.

Vegetation

Prior to installation, a licensed landscape architect must certify that all plants, unless otherwise specifically permitted, conform to the standards of the current edition of American Standard for Nursery Stock as approved by the American Standards Institute, Inc. All plant grades shall be those established in the current edition of American Standards for Nursery Stock.

- Shade trees must have a single main trunk. Trunks must be free of branches below the following heights:

CALIPER (in)	Height (ft)
1½-2½	5
3	6

- Plants must be tolerant of summer drought, ponding fluctuations, and saturated soil conditions for 96 hours.
- It is recommended that a minimum of three types of tree, shrubs, and/or herbaceous groundcover species be incorporated to protect against facility failure due to disease and insect infestations of a single species.
- Native plant species and/or hardy cultivars that are not invasive and do not require chemical inputs must be used to the maximum extent practicable.

The biofiltration area should be vegetated to resemble a terrestrial forest community ecosystem, which is dominated by understory trees, a shrub layer, and herbaceous ground cover. Select vegetation that:

- Is suited to well-drained soil;
- Will be dense and strong enough to stay upright, even in flowing water;
- Has minimum need for fertilizers;
- Is not prone to pests and is consistent with Integrated Pest Management practices; and
- Is consistent with local water conservation ordinance requirements.

Irrigation System

Provide an irrigation system to maintain viability of vegetation, if applicable. The irrigation system must be designed to local code or ordinance specifications.

Restricted Construction Materials

The use of pressure-treated wood or galvanized metal at or around a biofiltration area is prohibited.

Overflow Device

An overflow device is required at the 18-inch ponding depth. The following, or equivalent, should be provided:

- A vertical PVC pipe (SDR 26) to act as an overflow riser.
- The overflow riser(s) should be eight inches or greater in diameter, so it can be cleaned without damage to the pipe.

- The inlet to the riser should be at the ponding depth (18 inches for fenced biofiltration areas and 6 inches for areas that are not fenced), and be capped with a spider cap to exclude floating mulch and debris. Spider caps should be screwed in or glued (e.g., not removable). The overflow device should convey stormwater runoff in excess of 1.5 times the SWQDv that is not reliably retained on the project site to an approved discharge location (another stormwater quality control measure, storm drain system, or receiving water).

Maintenance Requirements

Maintenance and regular inspections are important for proper function of biofiltration areas. Biofiltration areas require annual plant, soil, and mulch layer maintenance to ensure optimal infiltration, storage, and pollutant removal capabilities. In general, biofiltration maintenance requirements are typical landscape care procedures and include:

- Irrigate plants as needed during prolonged dry periods. In general, plants should be selected to be drought-tolerant and not require irrigation after establishment (two to three years).
- Inspect flow entrances, ponding area, and surface overflow areas periodically, and replace soil, plant material, and/or mulch layer in areas if erosion has occurred. Properly-designed facilities with appropriate flow velocities should not cause erosion except potentially during in extreme events. If erosion occurs, the flow velocities and gradients within the biofiltration area and flow dissipation and erosion protection strategies in the pretreatment area and flow entrance should be reassessed. If sediment is deposited in the biofiltration area, identify the source of the sediment within the tributary area, stabilize the source, and remove excess surface deposits.
- Prune and remove dead plant material as needed. Replace all dead plants, and if specific plants have a high mortality rate, assess the cause and, if necessary, replace with more appropriate species.
- Remove weeds as needed until plants are established. Weed removal should become less frequent if the appropriate plant species are used and planting density is attained.
- Select the proper soil mix and plants for optimal fertility, plant establishment, and growth to preclude the use of nutrient and pesticide supplements. By design, biofiltration facilities are located in areas where phosphorous and nitrogen levels are often elevated such that these should not be limiting nutrients. Addition of nutrients and pesticides may contribute pollutant loads to receiving waters.
- In areas where heavy metals deposition is likely (i.e., tributary areas to industrial, vehicle dealerships/repair, parking lots, roads), replace mulch annually. In areas where metals deposition is less likely (i.e., residential lots), replace or add mulch as needed to maintain a two to three inch depth at least once every two years.

- Analyze soil for fertility and pollutant levels if necessary. Biofiltration soil media are designed to maintain long-term fertility and pollutant processing capability.
- Eliminate standing water to prevent vector breeding.
- Inspect overflow devices for obstructions or debris, which should be removed immediately. Repair or replace damaged pipes upon discovery.
- Inspect, and clean if necessary, the underdrain.

A summary of potential problems that need to be addressed by maintenance activities is presented in Table E-13.

The County requires execution of a maintenance agreement to be recorded by the property owner for the on-going maintenance of any privately-maintained stormwater quality control measures. The property owner is responsible for compliance with the maintenance agreement. A sample maintenance agreement is presented in Appendix H.

Table E-13. Biofiltration Troubleshooting Summary

Problem	Conditions When Maintenance Is Needed	Maintenance Required
Vegetation	Overgrown vegetation	Mow and prune vegetation as appropriate.
	Presence of invasive, poisonous, nuisance, or noxious vegetation or weeds	Remove this vegetation and plant native species as needed.
Trash and Debris	Trash, plant litter, and dead leaves present	Remove and properly dispose of trash and debris.
Irrigation (if applicable)	Not functioning correctly	Check irrigation system for clogs or broken lines and repair as needed.
Inlet/Overflow	Inlet/overflow areas clogged with sediment and/or debris	Remove material.
	Overflow pipe blocked or broken	Repair as needed.
Erosion/Sediment Accumulation	Splash pads or spreader incorrectly placed Presence of erosion or sediment accumulation	Check inlet structure to ensure proper function. Repair, or replace if necessary, the inlet device. Repair eroded areas with gravel as needed. Re-grade the biofiltration area as needed.
Contaminants and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants	Remove any evidence of visual contamination from floatables such as oil and grease.
Standing water	Standing water observed more than 96 hours after storm event	Inspect, and clean as needed, the underdrain to ensure proper function. Clear clogs as needed. Remove and replace planter media (sand, gravel, topsoil, mulch) and vegetation.

Owner's Certification.pdf

Project Owner's Certification

I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathered the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner's Name:			
Owner's Title:			
Company:			
Address:			
Email:			
Telephone No:			
Signature:		Date:	

Engineer Certification _SUSMP.pdf

ENGINEER'S CERTIFICATION

STANDARD URBAN STORMWATER MITIGATION PLAN

Preparer (Engineer) Certification			
Preparer (Engineer):			
Title		PE Registration #	
Company			
Address			
Email			
Telephone #			
I hereby certify that this Standard Urban Stormwater Mitigation Plan is in compliance with, and meets the requirements set forth in, Order No. 01-182/NPDES No. CAS004001, of the Los Angeles Regional Water Quality Control Board.			
Preparer Signature		Date	
Place Stamp Here			

Form OC1 - RPV.pdf

RANCHO PALOS VERDES

OWNER'S CERTIFICATION
MINIMUM BMPS FOR ALL CONSTRUCTION SITES

FORM OC 1

PLAN CHECK #_____

Project Name	_____	BUILDING/GRADING PERMIT NUMBER	
Project Location	_____		
Owner Name	_____	Contractor Name	_____
Address	_____	Address	_____
Phone	_____	Phone	_____
FAX/Email	_____	FAX/Email	_____

The National Pollutant Discharge Elimination System (NPDES) is the portion of the Clean Water Act that applies to the protection of receiving waters. Under permits from the Los Angeles Regional Water Quality Control Board (RWQCB), certain activities are subject to RWQCB enforcement. To meet the requirements of the Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit (R4-2012-0175), minimum requirements for sediment control, erosion control and construction activities must be implemented on each project site. Minimum requirements include:

- **EROSION:** Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs, such as the limiting of grading activities during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.
- **SEDIMENT CONTROL:** Eroded sediments from areas disturbed by construction and from stockpiles of soil shall be retained on site to minimize sediment transport from the site to streets, drainage facilities and/or adjacent properties via runoff, vehicle tracking or wind.
- **CONSTRUCTION MATERIALS CONTROL:** Construction related materials, wastes, spills or residues shall be retained on site to minimize transport from the site to streets, drainage facilities or adjoining properties by wind or runoff. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to remove sediment and pollutants.
- **NON-STORMWATER RUNOFF:** Non-stormwater runoff from equipment and vehicle washing and any other activity shall be contained at the project site.
- **EROSION AND SEDIMENT CONTROL PLAN (ESCP):** Required for projects one acre or more. The ESCP must be developed and certified by a Qualified SWPPP Developer (QSD).
- **HILLSIDE:** Construction upon slopes 25% or more requires the implementation of additional BMPs to protect slopes and prevent erosion and sediment runoff.

Minimum BMPs include: (1) Soil piles must be covered with tarps or plastic, (2) leaking equipment must be repaired immediately, (3) refueling must be conducted away from catch basins, (4) catch basins must be protected when working nearby, (5) vacuum all concrete saw cutting, (6) never wash concrete waste into the street, (7) keep the site clean, sweep the gutters at the end of each working day and keep a trash receptacle on site.

As the engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on stormwater quality. The project owner and contractor are aware that the selected BMPs shall be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity.

Engineer of Record Name	Engineer of Record Signature
Title	Date

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person(s) who manage the system or those person(s) directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/or inaccurate information, failing to update the BMPs or ESCP to reflect conditions, or failing to properly and/or adequately implement the BMPs may result in revocation of grading and/or other permits or other sanctions provided by law.

Landowner or Agent Name	Landowner or Agent Signature
Title	Date

Form P2 - RPV.pdf

STORMWATER TREATMENT CERTIFICATION

FORM P2

RANCHO PALOS VERDES

SITE NAME and ADDRESS

_____

_____

_____

_____

Plan Check #_____

Planning #_____

APPROXIMATE PROJECT CHARACTERISTICS

Roofed Area	_____	ft^2
Roadway/Parking Area (exposed)	_____	ft^2
Landscaped/Vegetation	_____	ft^2
Other Ground Level Impervious Areas (Ex: Outdoor work or storage areas)	_____	ft^2
Other: _____	_____	ft^2
TOTAL	_____	ft^2

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary) or see back

Area Designation (must correspond with plans)	**Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rates or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include model number if any)	**BMP Location** (briefly describe)	**Design Treatment Capacity**

By stamping this form, I acknowledge that each treatment BMP is provided with adequate bypass or overflow so as not to contribute to localized flooding or soil instability.

*Flow rates and volumes based on 0.75 inches of rainfall, include detailed calculations.

I certify that I am a Professional Engineer or Licensed Architect registered in the State of California, and that the treatment methods and capacities herein comply with the requirements established by the California Regional Water Quality Control Board, Los Angeles Region, and the State Water Resources Control Board for Standard Urban Stormwater Mitigation Plans (SUSMP).

Affix Registered Engineer Wet Ink Stamp Here:

Print Name	**Signature**	**Date**

STRUCTURAL/TREATMENT BMPs

(attach additional sheets as necessary)

Area Designation (must correspond on plans)	**Area** (ft^2)	**Average Impervious Factor**	**Estimated Flow Rates or Volume***	**Anticipated Potential Pollutants**	**Type of BMP** (include model number if any)	**BMP Location** (briefly describe)	**Design Treatment Capacity**

LID Plan Check Correction Sheet_Trump National_2019.09.23.pdf

RANCHO PALOS VERDES

STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP) CHECKLIST

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Standard Urban Stormwater Mitigation Plan (SUSMP) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project SUSMP. A copy of the completed checklist should be retained with the project planning/permitting file.

Contact Name:	Selim R Sawaya	Permit Case No:	SUB2017-00001
Contact Title:	President	Site Name:	Trump National Golf Course (Tract 50666)
Company Name:	Sawaya Engineering Consultants, INC.	Site Address:	One Trump National Drive
Mailing Address:	26950 Ironstone Drive	Type of Facility:	
City, State, Zip:	Yorba Linda, CA 92887	Submittal Date:	09/09/2019
Phone Number:	(626) 715-2320	Plan Return Date:	09/23/2019
Email Address:	selim@sawayaeng.com	Disturbed Area:	

First Review
LID Plan Received on: 07/17/2018
Review Completed on: 07/23/2018

Second Review
LID Plan Received on: 03/15/2019
Review Completed on: 03/28/2019

Third Review
LID Plan Received on: 09/09/2019
Review Completed on: 09/23/2019

Fourth Review
LID Plan Received on:
Review Completed on:

Fifth Review
LID Plan Received on:
Review Completed on:

Sixth Review
LID Plan Received on:
Review Completed on:

LID Plan Check Correction Sheet_Trump National_2019.09.23.pdf

ITEMS REQUIRING CORRECTIONS:

Notes:

- *The project is over 1 acre and will require a Storm Water Pollution Prevention Plan (SWPPP). Note, if the construction activity is part of a larger common plan of development, it must be accounted for in the SWPPP prepared for the property as a whole. The SWPPP must be submitted for review and deemed compliant with the CGP. Once authorized, the SWPPP must be uploaded to SMARTS and issued a WDID # prior to issuance of permits and approval of the SUSMP.*
- *Prior to issuance of building permits for individual residential lots, the applicant shall prepare and submit all relevant construction Plans conforming to the approved SUSMP.*
- *Several Treatment Control BMPs (i.e. Connector Pipe Screens) will be installed in catch basins within the City's right-of-way (i.e. Palos Verdes Drive South, etc.). The SUSMP must include an attachment indicating the City's intent to accept the filter inserts as designed.*

1. BMP Selection and Sizing Calculations – The following must be addressed:

   a. A 'Sand Filter Basin' is proposed to mitigate subareas 6 – 12; however, this device does not meet the design specifications of an approved design standard for a biofiltration BMP. Revise the SUSMP report to specify the design standard utilized (i.e. LA County's BIO-1, etc.) and ensure all design specifications are being followed (i.e. geometry, sizing, drainage, Planting/Storage Media, etc.). Additionally, the Site Plan indicates the proposed ponding depth is 2-ft; however, the maximum ponding depth permitted is 1.5-ft.

   b. Subarea 4 directs $SWQD_V$ offsite without treatment. Revise Plans to direct subarea 4 to a LID BMP (i.e. CB-5). Additionally, clarify drainage from the adjacent (eastern) Park Lot A. It appears as though impervious surface is proposed (or exists); however, it appears this portion of Park Lot A is not included in the Site Plan. Further clarification is required.

   c. BMP sizing calculations indicate "percent impervious of 30% for residential land use was condition by the City;" however, the City indicated in their email on May 1, 2019 that the maximum allowed lot coverage (i.e. impervious) is 40% (not 30%). See Resolution No. 2008-85, Condition Q1 below. Note, since the site-specific impervious condition of each residential lot is not known at this time, revise calculations (i.e. Areas 5, 7, 10, and 14) to incorporate the maximum allowed residential lot coverage (40%) to ensure adequate sizing of the LID BMPs.

> Q. MINIMUM OPEN SPACE REQUIREMENTS OF INDIVIDUAL RESIDENCES
>
> 1. The minimum open space requirement for all lots shall not be less than 60 percent of the lot. Lot coverage shall include the building footprint, driveway and parking area, covered patios, covered walkways, and other accessory structures.

   d. It is understood the project shall conservatively estimate the percent impervious of the residential land use per the City's condition (i.e. maximum impervious cover of 40%); however, it is unclear how the remaining subarea's impervious conditions were derived. Provide a detailed narrative description of the impervious and pervious condition for each subarea, which will be utilized to justify the $SWQD_V$ calculations provided throughout the SUSMP.

   e. Provide sizing calculations to demonstrate the diversion structure within Line P is sized to convey the $SWQD_V$ from subareas 6-12 to the proposed BMP and only flow beyond the $SWQD_V$ can bypass the BMP.

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2. Site Plan – Clarify the BMP filter capacity information provided in the table on the Site Plan. For instance, subarea 5 indicates the bio-treatment unit has a capacity of 0.577 cfs; however, it appears the corresponding unit has a capacity of 0.115 cfs. Similarly, the vegetated swale's capacity is indicated as 0.577 cfs; however, it is unclear how this value was derived as sizing calculations were not provided. Note, it appears as though this value is associated with the bio-treatment unit in subarea 14.

BEST MANAGEMENT PRACTICES BMPs						
SUBAREA	CATCHMENT DESCRIPTION	TRIBUTARY AREA (Ac)	Q_{PM} (cfs) 0.75 INCH	V_{PM} (cu-ft) 0.75 INCH	BMP TYPE	FILTER CAPACITY
1	CB-1	0.13	0.02	209	CONNECTOR PIPE SCREEN	
2	CB-2	0.37	0.07	829	CONNECTOR PIPE SCREEN	
3	CB-3	0.48	0.09	1076	CONNECTOR PIPE SCREEN	
4	CB-4	0.57	0.07	311	CONNECTOR PIPE SCREEN	
5	CB-5	2.03	0.10	1503	BIO-TREATMENT UNIT	0.577
6	CB-6	2.58	0.14	2606		
7	CB-7	2.19	0.19	3165		
8	CB-8	0.98	0.08	1314	FOREBAY/SAND FILTER BASIN	
9	CB-9	1.19	0.11	1648	TOTAL Vpm = 12790 cuft	14159
10	BACK OF LOTS 14TO 23	2.39	0.33	2301		
11	CB-11	0.84	0.08	797		
12	CB-12	1.05	0.06	889		
13	CB-13	0.83	0.09	889	VEGETATED SWALE	0.577
14	LOTS 1 TO 11	6.58	0.51	965	BIO-TREATMENT UNIT	
	CB-15				CONNECTOR PIPE SCREEN	

3. Plans –

   a. The Plans must indicate the locations of all structural BMPs (i.e. storm drain stencil signage, etc.) with construction notes, and must reference a cross-sectional detail which must be provided on Plans as well.

   b. Sheet 3: It is unclear whether "Line L-A" is represented or identified in the storm drain profile. This information is critical to verify drainage from the LID BMP. Revise Plans to provide clarification.

   c. Sheet 11: Revise the cross-sectional detail of the vegetated swale as follows:

      i. The cross-sectional detail for the vegetated swale indicates the bottom width is 3-ft min; however, revise plans to indicate the precise width (i.e. 3-ft) and/or maximum width (i.e. 3-ft max).

      ii. The cross-sectional detail for the vegetated swale must indicate the depth of flow and correspond to the sizing calculations (i.e. 0.03 -ft).

      iii. Revise to specify the amended soil shall have 2-inch of compost tilled into 6-inches native soil (unless native soil organic content > 10%).

      iv. Clarify whether an energy dissipator is proposed at the inlet of the vegetated swale (which is required).

4. O&M Plan – A comprehensive Operations and Maintenance (O&M) Plan must be provided (see attached). The O&M Plan must list and describe the LID, Treatment Control, and Source Control BMP proposed (i.e. Modular Wetland Systems, vegetated swale, basin, storm drain stencil signage, street sweeping, etc.). Include details such as maintenance procedures, requirements, inspections, and frequencies. Include language describing maintenance frequency and requirements when the system is not functioning properly (i.e. remove sediment buildup when necessary, clear out all

LID Plan Check Correction Sheet_Trump National_2019.09.23.pdf

observed trash and debris, etc.). The name, address, email, etc. of the specific entity (individual, not company) needs to be identified.

Items required for approval of the SUSMP, but are not required at this time:

5. Title Page – The front page must be signed and stamped with wet ink application by a California licensed civil engineer prior to SUSMP approval.
6. Owner's Certification – The certification must be provided (see attached). The certification must be signed and dated with wet ink application by the landowner or approved signatory. An approved signatory (e.g. "President," "Vice President," "Representative," etc.) must be a partner to the company which owns the title to the land, or equivalent. If the individual signing the documents is an approved signatory, documents indicating the designated signatories (i.e. Certificate of Secretary, California All-Purpose Acknowledgment, notarized Acknowledgment, etc.) must be included for approval of the SUSMP.
7. Engineer's Certification – The certification must be provided (see attached). The certification page must be signed, dated, and stamped with wet ink application by a California licensed civil engineer.
8. Section 2.0, Conditions – Revise narrative to specify the following or similar; "the SUSMP requirements per the 2001 MS4 Permit are being followed as the project received planning entitlement prior to adoption of the 2012 MS4 permit."
9. MCA – The City's Master Covenant Agreement (MCA) form must be utilized (see attached). The MCA must indicate the quantity, make, model, size, and type (as applicable) of all structural BMPs proposed (i.e. filter inserts, BMPs, etc.) and sump pump(s) (if applicable). The MCA must have an attached Operations and Maintenance (O&M) Plan, 8.5"x11" BMP Exhibit, and signed Owner's Certification page. Once the MCA is approved by JLHA, it must be signed and dated with wet ink application by the owner and notarized and recorded (along with attachments) with the County Recorder's Office.
10. City Forms – The following must be addressed:
    a. Form OC-1: The form must be signed and dated by the owner (or approved signatory) and a licensed California civil engineer with wet ink signatures prior to approval of the SUSMP.
    b. Form P2: The form must be provided (see attached). Fill out all fields. The BMP information should be organized such that there is one row for each BMP. Once completed, the form must be signed, dated, and stamped with wet ink application by a California licensed civil engineer.
11. Plans – The stamp provided by the California licensed civil engineer is expired (i.e. 06/30/2009) and must be revised to reflect a valid license.
12. Wet Ink Signature and Stamp on Grading Plans – Full-sized copies (24" x 36" or larger) of all relevant plans (i.e. grading plans, drainage plans, etc.) showing the site with all proposed BMPs and water quality notes must be signed and stamped with wet ink application by a California licensed civil engineer.
13. Three (3) hard copies of the SUSMP (with the front page of each signed, stamped, and dated by a licensed California civil engineer), three (3) copies of the full-sized grading plans (each sheet signed, stamped, and dated by a licensed California civil engineer), one (1) copy of all original (wet ink documentation) forms and certifications, and one (1) electronic copy (email, CD, download from FTP site, etc.) of all documents listed above must be provided.

Operations and Maintenance (O&M) Plan

for

Insert Project Name

Insert Project Address

Insert Property Legal Description and APN Number

Operations and Maintenance Plan

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
	Non-Structural Source Control BMPs		
	Education for Property Owners, Tenants and Occupants Insert BMP narrative.		
	Activity Restriction Insert BMP narrative.		
	Common Area Landscape Management Insert BMP narrative.		
	BMP Maintenance Insert BMP narrative.		
	Title 22 CCR Compliance Insert BMP narrative.		
	Spill Contingency Plan Insert BMP narrative.		
	Underground Storage Tank Compliance Insert BMP narrative.		
	Hazardous Materials Disclosure Compliance Insert BMP narrative.		
	Uniform Fire Code Implementation Insert BMP narrative.		
	Common Area Litter Control Insert BMP narrative.		
	Employee Training Insert BMP narrative.		
	Housekeeping of Loading Docks Insert BMP narrative.		
	Common Area Catch Basin Inspection Insert BMP narrative.		

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
	Street Sweeping Private Streets and Parking Lots Insert BMP narrative.		
	Retail Gasoline Outlets Insert BMP narrative.		
Structural Source Control BMPs			
	Provide Storm Drain System Stenciling and Signage Insert BMP narrative.		
	Design and Construct Outdoor Material Storage Areas to Reduce Pollutant Introduction Insert BMP narrative.		
	Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction Insert BMP narrative.		
	Use Efficient Irrigation Systems & Landscape Design Insert BMP narrative.		
	Protect Slopes and Channels and Provide Energy Dissipation Insert BMP narrative.		
	Loading Docks Insert BMP narrative.		
	Maintenance Bays Insert BMP narrative.		
	Vehicle Wash Areas Insert BMP narrative.		
	Outdoor Processing Areas Insert BMP narrative.		

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
	Equipment Wash Areas Insert BMP narrative.		
	Fueling Areas Insert BMP narrative.		
	Hillside Landscaping Insert BMP narrative.		
	Wash Water Controls for Food Preparation Areas Insert BMP narrative.		
	Community Car Wash Racks Insert BMP narrative.		
Treatment Control BMPs			
Yes	**Treatment Control BMP # 1** Insert BMP narrative.		
Yes	**Treatment Control BMP #2** Insert BMP narrative.		
LID BMPs			
Hydromodification Control BMPs			

Required Permits

This section must list any permits required for the implementation, operation, and maintenance of the BMPs. Possible examples are:

- Permits for connection to sanitary sewer
- Permits from California Department of Fish and Game
- Encroachment permits

If no permits are required, a statement to that effect should be made.

Responsible Party

The owner is aware of the maintenance responsibilities of the proposed BMPs. A funding mechanism is in place to maintain the BMPs at the frequency stated in the LID Plan. The contact information for the entity responsible is below:

Name: _____

Company: _____

Title: _____

Address 1: _____

Address 2: _____

Phone Number: _____

Email: _____

Forms to Record BMP Implementation, Maintenance, and Inspection

The form that will be used to record implementation, maintenance, and inspection of BMPs is attached. All records must be made available for review upon request.

RECORD OF BMP IMPLEMENTATION, MAINTENANCE, AND INSPECTION

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed